

and made a collection both of its plants and of its animal life. With the exception of my birds and a few of the insects, my collections were destroyed by sea water, so that it is now impossible for me to give a definite list, but I may note that rats were in such numbers as to have become almost a plague. A goodly herd of introduced *Rusas*, a cross between the Sumatran (*C. equinus*) and Javan (*C. Hippelaphus*) species, were in excellent condition, and were living wild on Direction Island, where also pigs were living in the same state. Among birds, the *Gallus bangkiva* (introduced) was in considerable numbers; I saw also the nest of the *Ploceus hypoxanthus*, which comes, not every year, but very often to breed there, but the progeny seems either to die or to return to Java (?). I did not see the snipe, but of the *Rallus philippinus* I got several specimens. Egrets, blue and white, abounded and rested on the high trees on some of the islands. Lizards of several species are now found on most of the islands in large numbers. Of insects the number of species is very considerable. Coleoptera were represented by *Melolonthide*, *Cetoniide*, *Carabide*, *Elateride*, *Chrysomelide*, but as I have not my journals of that date by me, I cannot recall other families nor state the number of genera represented. Of Hemiptera I caught a good many species, mostly of small size. Many species of ants were observed. Neuroptera are represented, unfortunately, by the *termite*, introduced some years ago in furniture, it is said, but it occurs now on every islet of the group in myriads. I am told that during the cyclone of a few years ago, the whole surface of the sea was covered with the mangled bodies of dragon-flies for miles out to sea, but that since then very few have been seen. Of Lepidoptera I caught many species both diurnal and nocturnal, some very handsome, of which I sent a small collection to London in 1879. The Atlas Moth is rather common. Orthoptera were represented by the ubiquitous cockroach, and a few *Acridide*.

Mr. Ross told me that on several occasions the large fruit bat, called the flying fox, has reached the islands, and once a pair arrived together, but died, from exhaustion apparently, soon after arrival. Under favourable circumstances, as in the case of an unusually strong pair, these may yet become inhabitants of the islets.

There are, I believe, considerable additions to the flora since Mr. Darwin's visit. It is only within recent years that the islands have become so greatly covered with cocoanut plants. Their original vegetation consisted principally of "iron wood" (*Sideroxylon*?) and other trees, and of low shrubs. These were nearly all burned out by accidental fires, one of which burned for three months.

HENRY O. FORBES

Fatunaba, Timor Dilly, January 21

"Festooned" or "Pocky" Clouds (Mammato-Cumulus)

UNDER one of these names letters have appeared at different times in NATURE, notably on October 19, 1871. These were followed by a paper read before the Meteorological Society by Mr. R. H. Scott in February, 1872, in which he collects all the observations which had then been recorded, and the theories which had been propounded to explain them.

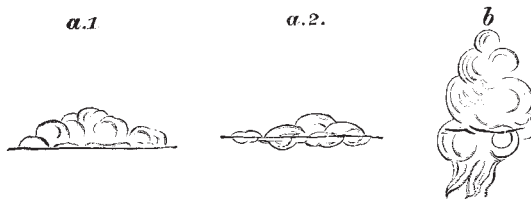
For several years I have been watching this kind of cloud, and I think that its formation is capable of a very simple explanation, partially in agreement with that suggested by Mr. Jevons in the earliest notice of these clouds (*Phil. Mag.*, July, 1857). The name is applied to a peculiar festooned appearance sometimes seen below cumulus and stratus clouds. In Orkney Mr. Clouston has found that it is usually followed by a severe gale; but in Lancashire, where the festoons are called "rain-balls," it is only considered a sign of rain. Other observers in the tropics have also seen it with thunderstorms, and not necessarily with wind. In this country I have observed it both in heavy gales and also in an ordinary summer thunderstorm. The method by which I have endeavoured to discover its origin has been to try and trace its life-history; that is to say, to follow its growth from other forms of cloud and to watch the forms into which it develops.

On one point almost all observers are agreed, that the festoons are frequently seen just before a cloud begins to break up. The first time that I was fairly able to trace the formation of the cloud was one summer evening in London, when towards sunset a flat-based cumulus, like that marked *a 1* in the figure, suddenly became festooned at the base and diminished on the top, as marked *a 2* in the figure. A few minutes afterwards the whole cloud evaporated. The succeeding night was fine. The

explanation which immediately suggested itself was that the ascensional current which had formed the flat-based cumulus had suddenly failed, and that the festoons were simply the masses of vapour falling downwards for want of support.

Another very striking case is marked *b* in the figure, and was observed before a shower. Here a detached cumulus was observed to form first festoons, and then they in turn degenerated into raggy cloud, the whole disappearing very shortly, but was quickly followed by fresh rain-bearing clouds. The impression which the whole conveyed to me was that the festoons were formed by a sudden drop of the cloud, and that the "rag" was produced when the drop was less sudden. The appearance of the "rag" is not very well rendered in the diagram, but it is very difficult to delineate clouds by any engraving.

These are two typical cases of many which I have observed, and always with the same result—that the constant condition necessary for the formation of festoons was the sudden failure of an ascensional current of air. If so, the explanation of its prognostic value is very simple. Before many squalls or showers we are all familiar with the short, abortive gusts which so frequently precede them. Now we have only to assume that the ascensional uptake in front of the main body of the shower is as unsteady as the surface wind, and we have at once all the conditions of the formation of festoons. Almost all observers agree that they are usually formed at the edges of cloud masses. In the case of rain or thunder they ordinarily appear just before or after the rain; but in the case of a gale following some time afterwards, as observed by Mr. Clouston, the festoon must have been formed by some local squall or shower which bore some



relation to the disturbed weather which produced the gale. I once saw festoons in the west of Scotland during the hardest gale I have ever seen in this country. They were formed on the outskirts of a north-westerly squall.

Allied to festooned cumulus we may mention festooned stratus and festooned cirrus. The former is quite common in London during the summer, associated with showers or thunderstorms, while the latter is rare. In both the same idea seems to hold good as for cumulus, that they are formed by the sudden failure of the current, whatever it may be, that forms the stratus or cirrus.

It might appear, at first sight, that a uniform stratus could not fall in lumps; but however uniform it may seem, viewed from below, there is probably no such thing as a uniform stratum of cloud. Some portions are always denser, or composed of larger drops, and these, falling first, give the "pocky" appearance. In many simple cases, which I have been able to follow, there often seems to be a rough correspondence between bosses on the upper surface and festoons on the lower. In *a 2* there is an unsuccessful attempt to depict such a case, which is drawn from nature.

The name of "festooned cloud" has been objected to as suggesting a lengthways arrangement of vapour, like the cloud called "rolled cumulus," with which it has probably nothing in common. Mr. Clement Ley has proposed the name of "tubercled cloud" as more applicable. Prof. Poey, who has also studied this cloud, has proposed the name of "globo-cumulus."

The general conclusion then, is that festoons are caused by a sudden failure of an ascensional current associated with showers or squalls, but whether they portend rain or wind depends on the circumstances under which they are observed.

21, Chapel Street, S.W., April 27 RALPH ABERCROMBY

The Sacred Tree of Kum-bum

PERHAPS the following statement may throw a little light on what was the tree seen by the Abbé Huc:—

On his voyage home from China the Abbé touched at Ceylon. This must have been in 1852 or 1853, as far as I can recollect. I was invited to meet him at breakfast, at the house of my kind

friend, Sir Charles Macarthy, then Colonial Secretary, my zoological and botanical tastes being well known to the latter.

The conversation turning on plants, the Abbé described a wonderful tree which he had seen, on the leaves of which were impressed thousands of likenesses of Buddha. Nothing was said about "Thibetan characters," nor did he lead us to suppose it grew larger than an ordinary cinnamon-tree (*not bush*), as it grows wild. His description was so detailed that, in spite of the florid language of a French traveller, I at once recognised a plant which grew not uncommonly in our gardens, the leaves of which were often placed in the finger-glasses after repasts, as on being crushed, they imparted a delicious fragrance to the hands. Looking up and catching the eye of our hostess, in which lurked an amused smile, I made the motions of dipping hands in a finger-glass. She instantly caught my meaning, whispered her instructions to the servant behind her chair, and each finger-glass—which useful adjunct to a meal was shortly after placed on the table—contained a leaf or two of what we used to call by a variety of names, such as the "profile laurel" or "figure laurel," or "face laurel."

The face of the Abbé was a picture to behold. "But here it is!" he exclaimed. "Where did this come from?" We then explained that it grew not a dozen yards from where he sat, to his great astonishment, and I fancied not a little chagrin, that his wonderful plant should be so well known and common.

The plant is, I believe a *laurel*. It has flashed across me that it may be a *citron*, but the plant is so well known in Ceylon, that if your contributor, Mr. W. T. Thielton Dyer, wishes to ascertain its name, he has but to write a line to the Director of the Botanical Gardens, Peradenia, who will at once recognise it.

The leaves are broad and pointed, shaped in fact somewhat like the cinnamon. Down each side of the midrib, extending along the veinlets (I write from memory, remember) are patches of pale greenish-yellow, much lighter than the ground-colour of the leaf. These take innumerable fantastic, face-like shapes—always profile—and with the aid of a pin, or point of a dessert-fork, we, in

"Those merry days,
The merry days, when we were young,"

used to put in an eye, and amuse ourselves in trying to find likenesses of our friends and acquaintances. It was a source of much fun among the young people.

The events of that morning were, from a variety of circumstances, deeply impressed on my memory, and I am positive that then nothing was said about "Thibetan characters" on the leaves or on the bark, nor of the *great size* of the tree, and the Abbé distinctly recognised the leaves as identical with those he had seen. You will perceive he calls it the "Tree of the Ten Thousand *Images*" (the italics are mine). This name would well apply to the "profile laurel," for no two faces are ever alike, but does not include *characters*.

Whether the size of the tree and the "Thibetan characters" grew (in the Abbé's brain?) after he left Ceylon, I do not know. The "real article" seems to have vanished. A bungling attempt to deceive by etching in lilac leaves could easily be detected, but "travellers see strange things"! E. L. LAYARD

Brit. Consulate, Noumea, New Caledonia, March 5

Sheet-lightning

THE correspondence on this subject (*NATURE*, vol. xxviii. pp. 4 and 54) can scarcely be said to contribute anything in support of the statement that sheet-lightning and the so-called summer or heat-lightning, are nothing else than the reflection of, or the illumination produced by, distant electrical discharges. The table given in the review (*NATURE*, vol. xxvii. p. 576) is not a record of instances of sheet-lightning, but only the number of hours, sorted according to the twenty-four hours of the day, in which sheet-lightning or heat-lightning was observed at Oxford during the twenty-four years ending 1876. In constructing the table, all those hours were excluded in which thunder was heard, and also the hour immediately preceding and following the hour of occurrence of thunder. Only those hours, therefore, were included during which any thunder that may have accompanied the lightning was at some distance from Oxford.

It follows simply as a matter of statistics that, if all cases of sheet-lightning are nothing else but the illumination produced by distant electrical discharges, the curve of thunder and the curve of sheet-lightning and heat-lightning should be approximately parallel to each other after darkness has fairly set in. The

Oxford observations show that such is not the case. To make this quite clear we give the results for August only:—

	Thunder.	Lightning.
8-9 p.m.	5	0
9-10 "	3	3
10-11 "	4	6
11-mid.	3	14
Mid.-1 a.m.	2	14
1-2 "	2	12
2-3 "	1	4
3-4 "	0	3

These two sets of figures from 8 p.m. to 4 a.m. furnish two curves quite distinct from each other; and the difference is not to be explained by the degree of facility for recording the observations afforded by each separate hour. It may be added that a similar result is obtained from electrical manifestations in other parts of the globe during the summer months. It is from these facts that it was concluded that no inconsiderable number of the cases of sheet-lightning and heat-lightning are not illuminations produced by distant electrical discharges, but, as suggested by Loomis, are rather to be considered as due to the escape of the electricity of the clouds in flashes so feeble that they produce no audible sound, and they occur when the air being very moist offers just sufficient resistance to the electricity to develop a feeble spark.

THE REVIEWER

Solar Halo

THE following, taken from vol. i. *Philosophical Transactions*, p. 219, may interest your readers, as the phenomenon appears to coincide almost exactly with the one recorded in *NATURE*, vol. xxviii. p. 30. I omit the illustration, though it corresponds almost exactly with the one in *NATURE*, except that there were mock suns.

"An account of four suns, which very lately appear'd in France, published in the French *Journal des Savans* of May 10, 1666:—

"The 9th of April of this present year, about half an hour past nine, there appear'd three circles in the sky. One of them was very great, a little interrupted and white everywhere, without the mixture of any other colour. It passed through the midst of the sun's disk, and was parallel to the horizon. Its diameter was above a hundred degrees, and its center not far from the zenith.

"The second was much less, and defective in some places, having the colours of a rainbow, especially in that part which was within the great circle. It had the true sun for its center.

"The third was less than the first, but greater than the second, it was not entire, but only an arch or portion of a circle whose center was far distant from that of the sun, and whose circumference did by its middle join to that of the least circle, intersecting the greatest circle by its two extremities. In this circle were discerned also the colours of a rainbow, but they were not so strong as those of the second.

"At the place where the circumference of this third circle did close with that of the second, there was a great brightness of rainbow colours mixt together. And at the two extremities where this second circle intersected the first, appear'd two parhelia or mock suns, &c., &c."

In a note to this account it is stated that "Five suns appear'd the 29 March, A., 1629, at Rome between 2 or 3 of the clock in the afternoon." In the illustration given we find two circles similar to those given in *NATURE*. It seems that two of these suns "which were in the intersection of two circles, appear'd in that of a circle, which passed through the sun's disk, with another, that was concentric to the sun."

The phenomenon of last week was minus the parhelia; can any reason be given for this? THOS. WARD

Northwich, May 15

In reply to Mr. Mott's query (p. 30) I beg to say that I measured the halo with a sextant as carefully as possible, and made the semidiameter 25°. [Another halo occurring on the 13th measured 23° 20'.]

With regard to the mock moons, they were perfectly equidistant from the horizon all the time I observed them, and I regret that I did not notice that Mr. Mott had seen them otherwise. I read his letter rather hurriedly and thought the expression "out of place" referred to their position above the moon, and not to a want of parallelism with the horizon. SM.

Temple Observatory, Rugby, May 17